

27 March 1964

MEMORANDUM FOR THE CHAIRMAN, COMOR**SUBJECT: Target Priorities****Reference: Request for Ephemeris Data, dated 26 March 1964
(BYE-2512-64)**

The GAMBIT reconnaissance vehicle is designed to cover any target in the Sino-Soviet bloc on a single five day mission, when the project is fully operational. The principal method of programming for this target coverage is through the use of specially developed vehicle-programming computer routines. These are directed initially and monitored and modified by (S) NRO Satellite Operations Center personnel familiar with the reconnaissance system operations, capabilities and limitations, these supporting routines, and (through membership on the COMOR) the current desires of the national intelligence community. The determination of the target program for maximum coverage of the highest priority targets requires that the vehicle-programming operation be based upon all targets within reach at any time during the mission, with the relative priority as well as the target location a mandatory input. The total target capacity is on the order of six hundred for a single mission, and the vehicle performance is limited by the number and the extent of roll maneuvers that must be carried out, rather than the amount of film on board. Consequently, it is not possible to substitute the determination of relative target priorities along a track, based on a nominal ephemeris, for an overall determination of the priorities of all GAMBIT targets, without degrading the total intelligence potential of a nominal mission.

It is also apparent that the maximum intelligence potential of fully operational GAMBIT missions will require continuous follow-up on the actual ephemeris throughout the mission and some continuous adjustment of programmed targets on a rev by rev basis by the vehicle-programming computer. The extent and timing of roll maneuvers has been found to affect the predicted drag enough to cause sufficient ephemeris errors so that some targets will be missed unless this continuous correction is

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made. For example, although the sixth GAMBIT flight was very successful in obtaining a considerable number of targets, nevertheless, some were missed due to ephemeris errors. By making the necessary adjustments and refinements to our mission operations, it is clear that we can obtain more take under similar conditions in the future. The necessary adjustments in this regard also make mandatory the availability (within the vehicle-programming computers during the conduct of the mission) of the relative target priorities of all targets of interest.

In the continuing development program for the GAMBIT vehicle, we are making every effort to refine our procedures and routines to reach a fully operational stage at the earliest, while, at the same time, obtaining the maximum amount of the highest priority intelligence coverage. The next flight is planned for three days prior to recovery, with ephemeris which will vary substantially during the mission. The first day will be flown with perigee at approximately 95 nautical miles, after which the perigee will be lowered to approximately 72 miles. Orbit adjustment will be made in accordance with temperatures and gradients encountered. Again, target adjustment during the actual conduct of the mission must be based upon the relative priorities of all targets within reach during the mission, and not upon some targets associated with a pre-planned nominal track. It is simply not possible to proceed on the basis of manual target priority determination as the mission progresses without substantial loss of potential intelligence take.

We desire to be fully responsive to the national intelligence needs, and to obtain the maximum possible intelligence take of the best possible quality. For an earlier, restricted GAMBIT mission, where the expected target coverage was limited, we did invite the COMOR to consider the GAMBIT target priority problem on a nominal ephemeris basis. It was our hope that this one-time educational exercise would lead to a better understanding of GAMBIT operations, and on the basis of this understanding, would result in the responsive provision from the COMOR of all GAMBIT targets of interest and their current relative priority--the essential COMOR contribution to our mutual enterprise.

Signed

John L. Martin, Jr.
Brigadier General, USAF
Director, (S) NRO Staff

cc: Chairman, USIB

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